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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/770,385 | 01/29/2001 | H. Daniel Dulman | M4065.0376/P376 | 7102 |

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DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
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WASHINGTON, DC 20037-1526

EXAMINER

MOHAMEDULLA, SALEHA R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1756

DATE MAILED: 07/30/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/770,385

Applicant(s)

DULMAN ET AL.

Examiner

Saleha R. Mohamedulla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/16/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 21-27 and 30-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18, 21-27 and 30-35 is/are allowed.
- 6) ☒ Claim(s) 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-19, 21-27 and 30-35 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by US# 5,747,196 to Chao et al.

Claim 19 is a product by process claim and is drawn to a mask with an opaque layer overlying a first layer of material over a substrate. Chao teaches a method of forming a phase-shift mask and a phase shift mask. In Figure 5A, a light-transmissive thin film 34 and a light-blocking thin film 37 are successively formed on the transparent substrate 31. In the preferred embodiment, the light-blocking thin film 37 is made of an opaque material such as chromium (col. 4, lines 40-50). Therefore, Chao teaches the structural limitations of the claim.

3. Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by US# 5,633,103 to DeMarco et al.

DeMarco teaches a phase shifting mask. The mask includes a transparent substrate that supports a partially transparent, patterned layer of chromium oxynitride. This layer is a phase shifting layer (col. 5, lines 59-65). Then, a layer of chromium is sputtered onto the exposed

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areas of the patterned layer. DeMarco teaches that the chromium layer is sufficiently opaque (col. 6, lines 50-60). Claim 19 is a product by process claim and is drawn to a mask with an opaque layer overlying a first layer of material over a substrate. Therefore, DeMarco teaches claim 19.

Allowable Subject Matter

4. Claims 1-18, 21-27 and 30-35 are allowed. The prior art does not teach or suggest forming a first layer on a substrate, forming an opaque layer overlying the first layer where the opaque layer has an opening filled with a resist material residing over the first layer and defining areas of the first layer which are to be removed. The prior art does not teach or suggest providing the first material within the opening or deepened opening and over the opaque layer, directing a first exposure through the substrate to expose a portion of the first material, hardening or baking the exposed portion of the first material, directing a second exposure at said first material to remove unhardened portions, providing a second material over the opaque layer and hardened portions, performing a lithographic step on a portion of the second material overlying and bounded by the first material to expose and remove the portion of the second material, and etching the opaque layer underlying the exposed and removed portion of the second material.

Response to Arguments

5. Applicant argues that claim 19 is allowable based on its dependence on claim 1. However, claim 19 is a product-by-process claim, while claim 1 is a process claim. Claim 19 is materially limited by structural features, and not process limitations. The only structural features

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recited in claim 19 are drawn to a mask with an opaque layer overlying a first layer of material over a substrate. The prior art teaches this product. The process limitations in process claim 1 do not materially limit product claim 19. Therefore, Applicant's argument is not persuasive.

Action is Final

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Saleha Mohamedulla whose telephone number is (703) 308-1260. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this

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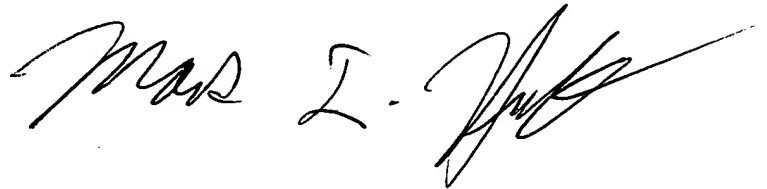
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application or proceeding is assigned is (703) 872-9310. The After Final fax phone number is (703) 872-9311. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

srn



July 26, 2003



MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700